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Emergency First Aid Treatment Guide  
for

AMMONIA

(7664-41-7)

**THE ENCLOSED INFORMATION WAS  
GATHERED FROM A VARIETY OF  
SOURCES. IT DOES NOT NECESSARILY  
REFLECT THE OPINIONS OR OFFICIAL  
POLICIES OF NIOSH.**

This guide should not be construed to authorize emergency personnel to perform the procedures or activities indicated or implied. Care of persons exposed to toxic chemicals must be directed by a physician or other recognized authority.

Substance Characteristics:

Pure Forms - Colorless gas.

Odor - Sharp, repelling.

Commercial Form - Compressed liquefied gas in steel cylinders, pressurized tank cars, barges, pipelines.

Uses - Fertilizer, chemical intermediate, condensation catalyst, latex preservative, bactericide, refrigerant, rocket fuel component, nitriding of steel, explosives intermediate.

Caution: Ammonia in containers may explode in heat of fire. Water used to dilute large ammonia spills must be added cautiously to avoid violent fuming.

Other Names - Anhydrous ammonia, liquid ammonia, ammonium hydroxide (ammonia in water, CAS No. 1336-21-6).

Emergency Life-Support Equipment and Supplies That May Be Required:

Compressed oxygen, forced-oxygen mask, soap, water, milk, normal saline, D5W, Ringer's lactate.

Signs and Symptoms of Acute Ammonia Exposure:

Warning: Ammonia is extremely corrosive to the skin, eyes, and mucous membranes. Contact with the liquified gas may cause frostbite. Caution is advised.

This Treatment Guide was developed by the  
U.S. Environmental Protection Agency (EPA).

Inhalation of ammonia may cause irritation and burns of the respiratory tract, laryngitis, dyspnea (shortness of breath), stridor (high-pitched respirations), and chest pain. Pulmonary edema and pneumonia may also result from inhalation. A pink frothy sputum, convulsions, and coma are often seen following exposure to high concentrations. When ammonia is ingested, nausea and vomiting may result; oral, esophageal, and stomach burns are common.

If ammonia has contacted the eyes, irritation, pain, conjunctivitis (red, inflamed eyes), lacrimation (tearing), and corneal erosion may occur. Loss of vision is possible. Dermal exposure may result in severe burns and pain.

#### Emergency Life-Support Procedures:

Acute exposure to ammonia may require decontamination and life support for the victims. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination. Air-purifying or supplied-air respiratory equipment should also be worn, as necessary.

#### Inhalation Exposure:

1. Move victims to fresh air. Emergency personnel should avoid self-exposure to ammonia.
2. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
3. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
4. Transport to a health care facility.

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**Dermal/Eye Exposure:**

1. Remove victims from exposure. Emergency personnel should avoid self-exposure to ammonia.
2. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.

**Warning:** Do not attempt to neutralize with an acid wash; excessive liberation of heat may result.

3. If eye exposure has occurred, eyes must IMMEDIATELY be flushed with lukewarm water for at least 15 minutes.
4. Remove contaminated clothing as soon as possible.
5. Wash exposed skin areas THOROUGHLY with soap and water.
6. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
7. Transport to a health care facility.

**Ingestion Exposure:**

1. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
2. DO NOT induce vomiting or attempt to neutralize!
3. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
4. Activated charcoal does not strongly bind ammonia, and therefore is of little or no value.
5. Give the victims water or milk: children up to 1 year old, 125 mL (4 oz or 1/2 cup); children 1 to 12 years old, 200 mL (6 oz or 3/4 cup); adults, 250 mL (8 oz or 1 cup). Water or milk should be given only if victims are conscious and alert.
6. Transport to a health care facility.